

REMARKS

Claims 1-3 and 7-10 are rejected. Claims 4-6 are objected to. Claims 1-10 are amended by this submission and new claims 11-19 are added.

Claims 4-6 are objected to as being in improper multiple dependent form and for informalities. Claims 4-6 are amended to delete or change the phrases objected to by the Examiner. Applicant respectfully requests that the Examiner remove his objection to claims 4-6.

Claims 1, 7, 8, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Duggal et al. Claim 1 is amended to recite "a phosphor layer provided on a first portion of the light-emitting surface, wherein the phosphor layer is capable of converting light of the first wavelength to visible light of a second wavelength, wherein a second portion of the light-emitting surface is without the phosphor layer, and wherein the second portion is substantially surrounded by the first portion." Claim 7 is amended to recite "said light-emitting surface has a second portion without the phosphor layer, . . . wherein the second portion is substantially surrounded by the first portion." Claim 9 is amended to recite "the phosphor layer is removed from, or not provided on, a portion of the light-emitting surface substantially surrounded by the phosphor layer."

Applicant respectfully submits that Duggal et al. does not teach the above-underlined element of claims 1, 7, and 9. As is clear from Duggal et al.'s Figs. 4, 5, and 6, Duggal et al. teaches a device with a single, contiguous layer of phosphor. Though Duggal et al.'s phosphor layer may contain more than one phosphor, the phosphors are mixed, then deposited as a single, uninterrupted layer. Duggal et al. does not teach "a second portion of the light-emitting surface . . . without the phosphor layer, . . . wherein the second portion is substantially surrounded by the first portion" as recited in claim 1. Accordingly, claims 1, 7, and 9 are patentable over Duggal et al.

Claim 8 depends from claim 7 and is therefore allowable for at least the same reasons as claim 7.

Claims 2-6 and 11-13 depend from claim 1 and are therefore allowable for at least the same reasons as claim 1. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duggal et al. in view of Soules et al. Applicant respectfully submits that Soules et al. add nothing to the deficiencies of Duggal et al. with respect to claim 1. Accordingly, claims 2 and 3 distinguish over the combination of Duggal et al. and Soules et al.

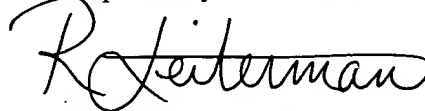
Claim 10 depends from claim 9 and is therefore allowable for at least the same reasons as claim 9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duggal et al. in view of Pope. Applicant respectfully submits that Pope adds nothing to the deficiencies of Duggal et al. with respect to claim 1. Accordingly, claim 10 distinguishes over the combination of Duggal et al. and Pope.

In view of the above arguments, Applicants respectfully request allowance of claims 1-19. Should the Examiner have any questions, the Examiner is invited to call the undersigned at (408) 382-0480.

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Respectfully submitted,



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ATTACHMENT A

IN THE CLAIMS

The claims are amended as follows:

1. (Amended) A light-emitting [diode] device comprising:

*at least one diode,
including*

a chip capable of emitting [visible] light of a first wavelength,

a light-emitting surface, and

a phosphor layer [which is] provided on a first portion of the light-emitting surface,

wherein the phosphor layer [and which] is capable of converting light of the first wavelength to visible light of a second wavelength, [characterized in that]

wherein a second portion of the light-emitting surface [comprises a sub-surface] is

without ^{any} the phosphor layer, and wherein the second portion is substantially surrounded by the first portion.

2. (Amended) A [diode] device as claimed in claim 1, [characterized in that]

wherein the sizes of the [sub-surface is] first portion and the second portion are such that

mixing the emitted light of the first and the second wavelength results in substantially white light.

3. (Amended) A [diode] device as claimed in claim 1, [or 2, characterized in that]

wherein the thickness of the phosphor layer is such that all the light of the first wavelength incident on the phosphor layer is converted to light of the second wavelength.

4. (Amended) A [diode] device as claimed in claim 1, [2 or 3, characterized in

that] wherein the [sub-surface] second portion without [a] the phosphor layer[, or the sub-surface on which the phosphor layer is provided,] is distributed over a plurality of [partial sub-surfaces] regions on the light emitting surface.

5. (Amended) A [diode] device as claimed in claim 4, [characterized in that]

wherein the [partial sub-surfaces] plurality of regions form a pattern.

6. (Amended) A [diode] device as claimed in [any one preceding claims, characterized in that] claim 1, wherein the [sub-surface] second portion without [a] the phosphor layer is at least partly covered with a light-transmitting layer which is capable of spreading light incident on said [sub-surface] second portion.

7. (Amended) A lighting device comprising at least one light-emitting diode including:

a chip which is capable of emitting [visible] light of a first wavelength,

a light-emitting surface, and

a phosphor layer which is provided on a first portion of the light-emitting surface and which is capable of converting light of the first wavelength to visible light of a second wavelength, [characterized in that] wherein said light-emitting surface [comprises a sub-surface] has a second portion without ^{any} the phosphor layer, and wherein the second portion is substantially surrounded by the first portion.

8. (Amended) A lighting device as claimed in claim 7, [characterized in that] wherein the lighting [unit] device further comprises optical elements for mixing the emitted light of the first and the second wavelength.

9. (Amended) A method of manufacturing a light-emitting diode, the method comprising:

at least partly surrounding [wherein] a chip [which is] capable of emitting [visible] light of a first wavelength [is at least partly surrounded by] with a light-emitting surface, and

providing a phosphor layer [is provided] on the light-emitting surface, which phosphor layer is capable of converting light of the first wavelength to visible light of a second wavelength, [characterized in that]

wherein ^{any} the phosphor layer is removed from, or not provided on, a [sub-surface] portion of the light-emitting surface substantially surrounded by the phosphor layer.

10. (Amended) A method as claimed in claim 9, [characterized in that] wherein the phosphor layer is provided on the [diode] light emitting surface by means of screen printing.

Please add the following new claims:

11. (New) A device as claimed in claim 1, wherein the second portion is completely surrounded by the first portion.

12. (New) A device as claimed in claim 1, wherein the second portion is disposed in a path of light emitted by the chip.

13. (New) A device as claimed in claim 1, wherein the light emitting surface is disposed in a path of light emitted by the chip.

14. (New) A light-emitting device comprising:
a chip capable of emitting light of a first wavelength,
a light-emitting surface, and
a plurality of regions of phosphor provided on the light-emitting surface, wherein the plurality of regions of phosphor are capable of converting light of the first wavelength to visible light of a second wavelength.

15. (New) A device as claimed in claim 14, wherein ^{each of} the plurality of regions of phosphor are separated by regions of the light-emitting surface without phosphor.

16. (New) A device as claimed in claim 15, wherein the regions of the light-emitting surface without phosphor are at least partly covered with a light-transmitting layer.

17. (New) A device as claimed in claim 16, wherein a thickness of the light-transmitting layer is substantially the same as a thickness of phosphor in the regions of phosphor.

18. (New) A device as claimed in claim 14, wherein the plurality of regions of phosphor form a pattern.

19. (New) A device as claimed in claim 18, wherein the pattern is a chessboard pattern.